UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.:	10/560,023	**Confirmation Number:** 1005
Applicant:	Sun-Uk Kim, *et al.*	
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Commissioner for Patents
P.O. Box 1450
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DECLARATION UNDER 37 C.F.R. § 1.132

I, Sun-Uk Kim, hereby declare as follows:

1. I received a Ph.D. in Ceramics from Alfred University in 1986, and I held a post-doctoral position with Alfred University from 1986 to 1987. I have been a research scientist at the Research Institute of Industrial Science and Technology (RIST) in Korea since 1987. During this time I was also a visiting researcher in the Materials Research Laboratory (MRL) at Penn State University. I consider myself an expert in the field of ceramics processing, especially in sol-gel processing methods. For example, my Ph.D. thesis was on the sol-gel processing of silica-titania systems, and my M.S. thesis was on the ion-exchange mechanism of aluminosilicate glasses.

2. I am a co-inventor listed on U.S. Patent Application 10/560,023 (hereinafter referred to as "the '023 Application").

3. I currently hold no ownership interest in the '023 Application.

4. I have reviewed and am familiar with the originally-filed disclosure of the '023 Application, including the originally-filed specification, drawings and claims. I am also familiar with the currently pending claims in the '023 Application.

5. I have reviewed and am familiar with U.S. Patent 3,876,156 (hereinafter referred to as "Fukumoto '156"). I understand that Fukumoto '156 discloses a process for manufacturing foamed products of silica by subjecting a silica gel to a heat-treatment. The silica gel is formed by adding a water-insoluble inorganic powder to a silica sol, which is subsequently gelled and dried.

6. I performed, or supervised the performance of, an experiment wherein +20 mesh and –20 mesh SiO_2 silica gel particles were prepared according to the method disclosed in Fukumoto '156. $A\ell_2O_3$ was used as the water-insoluble inorganic powder. The gels were separately heat-treated at 1000 °C for 3 minutes and then photographed. These photographs are attached to this Declaration in Exhibit A.

7. I performed, or supervised the performance of, an experiment wherein +20 mesh and –20 mesh SiO_2 pellets commercially available from Tong Yang Chemical Inc. were separately heat-treated at 1000 °C for 3 minutes. The resulting structures were then photographed. These photographs are also attached to this Declaration in Exhibit A.

8. The photographs provided in Exhibit A illustrate that the silica gel particles prepared using the $A\ell_2O_3$ powder are sharp, fractured particles having an irregular shape. In contrast, the silica gel pellets that do not include $A\ell_2O_3$ have a much more uniform, round appearance. It is believed that the irregular shapes and surfaces of the particles that include $A\ell_2O_3$ inhibit the process of internal pore formation during a heat-treatment process compared to the more uniform particles that do not include $A\ell_2O_3$.

9. As a result of the physical differences between silica gel particles prepared using $A\ell_2O_3$ powder and silica gel particles that are commercially available, I

would expect that other processing parameters, such as heat-treatment parameters, for these two different silica gels to be substantially different.

10. All statements made herein that are of my own knowledge are true. All statements made herein on information and belief are believed to be true. All statements made herein are made with the knowledge that (a) willful false statements and the like, so made, are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001, and (b) such willful false statements may jeopardize the validity of this application or any patent issuing therefrom.

June 23, 2011

_____   _____
Sun-Uk Kim   Date

EXHIBIT A

	photographed after heat-treatment (1000 °C for 3 minutes)	
SiO_2	+20 mesh	−20 mesh
$SiO_2 + A\ell_2O_3$	+20 mesh	−20 mesh